

Testimony opposing the Lahaina POTW Wastewater Underground Injection Permit Renewal

Nov 6, 2008

This testimony points out that Maui County is not merely the permit applicant. Under Hawaii's Constitution and recent state Supreme Court decisions, Maui County is also the public trustee of the County's water resources. As such, the County has an affirmative legal and moral duty to seek the highest and best uses for all waters of the county, including wastewaters from the Lahaina sewage treatment plant. In fact, the County has not conducted the necessary exploration of possible beneficial uses for these wastewaters and has not concluded that such beneficial uses do not exist. Accordingly, the permit should be denied. Instead of injecting waste water, it would be cleaned to R-1 standards and restore stream flows that have been previously diverted. See Kelly v. 1250 Oceanside Partners, NO. 26813 (HI Supreme Court, 2006), where it is held that counties as well as the State are bound by Art. XI, section 1 of the Hawaii State Constitution, and where the Court makes clear that this provision imposes on the State and counties the affirmative duty to "to assure that the waters of our land are put to reasonable and beneficial uses" and "to ensure the continued availability and existence of its water resources for present and future generations. It is imperative that water be returned to the streams for use of future generations. The Maui News article, Fri Sept 26, 2008 (front page) "Panel orders waters into streams" sets a precedent for all of Maui. This landmark decision requires that water be restored to 8 East Maui streams. The same is needed in West Maui for taro farmers and restoration projects.

By asking for conditions to reuse more of the wastewater and less injected, it is hoped that there will be EPA' and the County support for a community-wide collaborative conversation about what Maui County should do with these precious water resources. We believe the best course for all concerned would be to stop or phase out the harmful and wasteful disposal by injection of these waters and instead re-direct them for beneficial uses such as irrigation of dry fallow sugar cane fields.

I urge a community exploration of whether beneficial uses for present and future generations are (or soon could be) available for this important water resource – uses that would help us alleviate water shortages during years of recurrent drought. Given Maui's recurrent multi-year drought periods, we must see our way clear to phase out the wasteful and harmful disposal of these waters in injection wells and instead redirect these waters to a variety of important beneficial uses – agricultural and ornamental irrigation, landscaping and golf course irrigation, restoration of wetlands, among others. See *The 2004 Hawaii Water Reuse Survey and Report – Final Report*, prepared for DNLR by the Limtiaco Consulting (2005), p.7, which concludes "Water reuse should be viewed as a key component of sustainable water resource management. Recycled water can be a drought-proof and reliable supply of water. It can replace potable water that is currently used for non-potable purposes..

The endangering of the health of our reefs without abatement should be considered.

Hawaii DNLR, 2004 Hawaii Water Reuse Survey and Report – Final, (2005), p. 7 that states “water reuse is recognized as an environmentally preferred method of disposing treated wastewater (effluent), when compared to the traditional disposal methods through outfalls and injection wells.” It is our intent to protect our precious coral reefs and the economic benefits they bring to Maui. In this case, it means requiring the Lahaina POTW to employ water beneficial reuse strategies for the water in preference to waste-water disposal underground that results in pollution of oceans, harm to coral reefs, adverse effects on fish, and harm to recreational uses (such as diving, snorkeling) so important to Maui's economy. Our coral reefs are central to our ocean ecosystem and prevent beach erosion. Long, clean, beautiful, beaches are one of the main selling points of the Hawaii Tourism Authority. Maui's environment is a key part of its economy, and effluent is a threat to our coral reefs endangers our economic lifeblood.

This testimony cites the mounting evidence that Maui's coral reefs are at serious risk – not just from the nitrogen pollution and resultant algal growth resulting from the wastewater injectate that makes its way into near shore ocean waters, but also from other nonpoint pollution sources and other contributing factors. In this hearing, however, the question is whether one important source of this threat to Maui's reefs – the injection of treated sewage wastewaters into wells at Lahaina – can and should be allowed to continue unabated. In answering no, we do not mean to suggest that this set of wastewater treatment injection wells is the sole cause of harm to Maui's reefs. We do mean to suggest, however, that protection and preservation of our coral reefs must include, among other strategies, the abatement of nitrogen contamination from these wells. We also mean to suggest that Maui's waters are too precious to waste in this way, when they could be recycled and reused beneficially and safely.

There can be little doubt that Maui's coral reefs are in serious jeopardy. The harm done so far is not the result of one substance, activity, or causal agent, but of many. Algal blooms from the increasing amount of nitrogen in coastal waters represent serious risks to our coral reefs. Nor do the increasing levels of nitrogen in coastal waters come from a single source or activity. Fertilizers, pesticides, human waste runoff from septic fields and cesspools, and many other non-point sources of nitrogen pollution are contributing to this increasing burden on coastal waters for Maui County.

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Kamehameha Schools/Bishop Estate, 990 F.2d 458 (9th Cir. 1993).

In the current permit application (and supporting materials) the County has failed to sustain its burden of proof that continued injection of waste water at Lahaina:

- Will not result in releases of nitrogen-bearing nutrients, harmful pathogens, and other water pollutants to the near ocean environment;
- Will not contribute significantly to algae blooms, harm to coral reefs, increased risk of infectious water-borne disease, or other impairment of recreational uses of Maui's coastal waters;
- Is the only feasible alternative for managing of these wastewaters;
- Is necessary because water reuse options do not exceed;
- Will yield significantly lower costs and higher benefits for the citizens of the county than phasing out such injection in favor of waste water reuse for agricultural and ornamental irrigation, fire prevention, stream flow restoration and replenishment, and other purposes; and
- Is in the public interest.

The nitrogen-laden wastewater effluent discharged to the underground well in Lahaina does not stay underground. Maui's lava-originated geology results in the ground being porous. These wastewaters seep from the wells onto the surface, enter sub-surface ground water flows, and in other ways leak into near shore ocean environments. The wells are hydrologically (if indirectly) connected to the ocean receiving waters. Consequently, the discharge of wastewater effluents into deep wells is effectively a discharge of water pollutants into the ocean, and subject to the permitting requirements of the Federal Clean Water Act and State Water Pollution Control Laws.

Without providing persuasive evidence to carry its burden of proof on each of the foregoing points, the County cannot demonstrate that issuance of the requested injection permit is in the "public interest" – as required by §342D-6 (c) of Hawaii's Water Pollution Control Law and Article XI of the Hawaii State Constitution. Nor can the County show that the permit would be consistent with all applicable water quality criteria and standards and would meet the conditions for granting a permit under the UIC rules.

In considering whether the permit applicant has met its burden of proof in Hawaii, EPA must consider the Constitutional protections of Article XI, section 1 to be part of the applicable water quality standards and criteria.

- Under section 510 of the Clean Water Act, "States may develop water quality standards more stringent than required by the Water Quality Standards Regulation." EPA, NPDES Permit Writers' Guide (1996), p. 88 –
- See also EPA, NPDES Permit Writers Guide (1996), p. 13 – <http://www.mcelroylaw.com/US%20EPA%20NPDES%20Permit%20Writers%20Guide%201996.pdf>
- Id at p. 87: "Permit writers must consider the impact of every proposed surface water discharge on the quality of the receiving water. Water quality goals for a water body are defined by State water quality standards. A permit writer may find, by analyzing the effect of a discharge on the receiving water, that technology-based permit limits are not sufficiently stringent to meet these water

quality standards. In such cases, the CWA and EPA regulations require development of more stringent, water quality-based effluent limits (WQBEL) designed to ensure that water quality standards are met."

Maui's water is too precious to waste, it can and should be cleaned to R-1 standards and reused and recycled. Given Maui's recurrent multi-year drought periods, we must see our way clear to phase out the wasteful and harmful disposal of these waters in injection wells and instead redirect these waters to a variety of important beneficial uses – agricultural and ornamental irrigation, fire prevention, and landscaping and golf course irrigation, restoration of wetlands, among others. EPA, *NPDES Permit Writers Guide* (1996), p. 13 –

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Hawaii has four 'bad guy' algae

KA MO'OLELO MOANA
by Pam Daoust



In last month's column (Oct. 5, Page C6), I discussed how the ability of our oceans to produce both food and life-supporting oxygen depends on "balance." When there is just enough of a good thing, such as algae, everything flourishes. When there is too much of a good thing, such as algae, the balance is tipped, and other things begin to die. Algae blooms can be "too much of a good thing," leading to potentially disastrous results.

Algae blooms fall into three categories:

In the first, the "blooming" species is a generally harmless one that has overproduced itself. As the bloom dies, it consumes dissolved oxygen at an alarming pace, alters the pH of the water, blocks sunlight that other species need to survive, and increases turbidity. These conditions cause fish and other vertebrates to die.

The second category involves toxic species that are already capable of killing herbivorous fish and the species that consume them.

The third consists of nontoxic algae species equipped with spines or other attributes that damage the delicate tissues of fish and other marine life.

Algae blooms occur naturally in nature and provide food for many ocean inhabitants. They are a necessary component in maintaining the balance of life in our oceans.

It is "unnatural" algae blooms, usually involving non-native species and set off by "unnatural" circumstances, that exact the highest toll in killing off fish, shellfish and slower-growing algae species. Such blooms are the worst offenders in depleting our oceans of oxygen, fouling beaches and smothering reefs.

They are sending us a message that the ocean is in trouble and cannot maintain its balance of life. Typically occurring near coastal areas, they have been linked to increased nutrient availability caused by nitrogen-rich effluent from injection wells and land-based runoff containing fertilizers and pesticides. Contributing factors include the disappearance of herbivores, reduced freshwater stream flows into the ocean and changes in water temperature.

In Hawaii, four "bad guy" alien invasive species of algae pose a clear threat to our reefs, marine life and native species of algae.

Hypnea musciformis—Maui's most problematical species—arrived in Hawaii in 1974, when it was introduced to Oahu's Kaneohe Bay as part of an unsuccessful aquaculture project. It is believed to have spread to other islands via boat



ALLEGRA DISTEFANO photo
A green sea turtle makes its way along a once pristine beach that is now covered with algae.

traffic.

Hypnea grows in clumps and has intertwining branches with flattened tips and distinctive hooks at the end of them. When a clump is removed, the hooks remain behind to regrow, making it a difficult species to eradicate. Yellow-colored in sunlight and dark red in shade, *Hypnea* attaches to flat rocks on the ocean bottom.

In the bloom stage it forms massive, free-floating, smelly mats. Thousands of pounds of it wash up on Maui beaches, particularly in the winter months.

Hypnea has become a major food source for green sea turtles, but no one yet knows if it will prove to be a good diet for them. Its nutritional value has yet to be studied in comparison to that of disappearing native species once favored by our turtles.

Two other alien algae were introduced to Hawaii for experimental aquaculture in the mid-1970s. They are *Kappaphycus* spp. and *Gracilaria salicornia*.

Kappaphycus spp. is another fast-growing species found on the windward side of Oahu in Kaneohe Bay but not yet on Maui or the other islands. It grows by fragmentation of its thick, spiny branches and has the capacity to turn a life-filled diverse reef into a seaweed

dominated habitat with far fewer life forms. It can appear green, red or yellowish-orange, depending on lighting.

Gracilaria salicornia can be yellow to brownish green in color with cylindrical, but often flattened, branches. Currently found only in Hilo Bay of the Big Island and in Kaneohe Bay, this species shows a preference for calm, protected waters and forms large mats that effectively outcompete native species.

The fourth alien species is *Acanthopora speciosa*. It arrived in the islands in 1950 via a barge from Guam. It invaded Oahu first then spread to all of the islands. This species thrives on the high nutrient content in our coastal waters and reproduces rapidly.

Controlling damaging, alien species of algae is a constant, costly battle. A sure way to win the battle and begin restoring the balance of life in our oceans is to stop doing the things that cause algae blooms. Locally, this means protecting herbivores, reclaiming and reusing wastewater instead of pumping it out into the ocean, restoring the freshwater stream inflows and reducing our reliance on land-based chemical pollutants.

All of this will take educa-

See ALGAE
on the next page

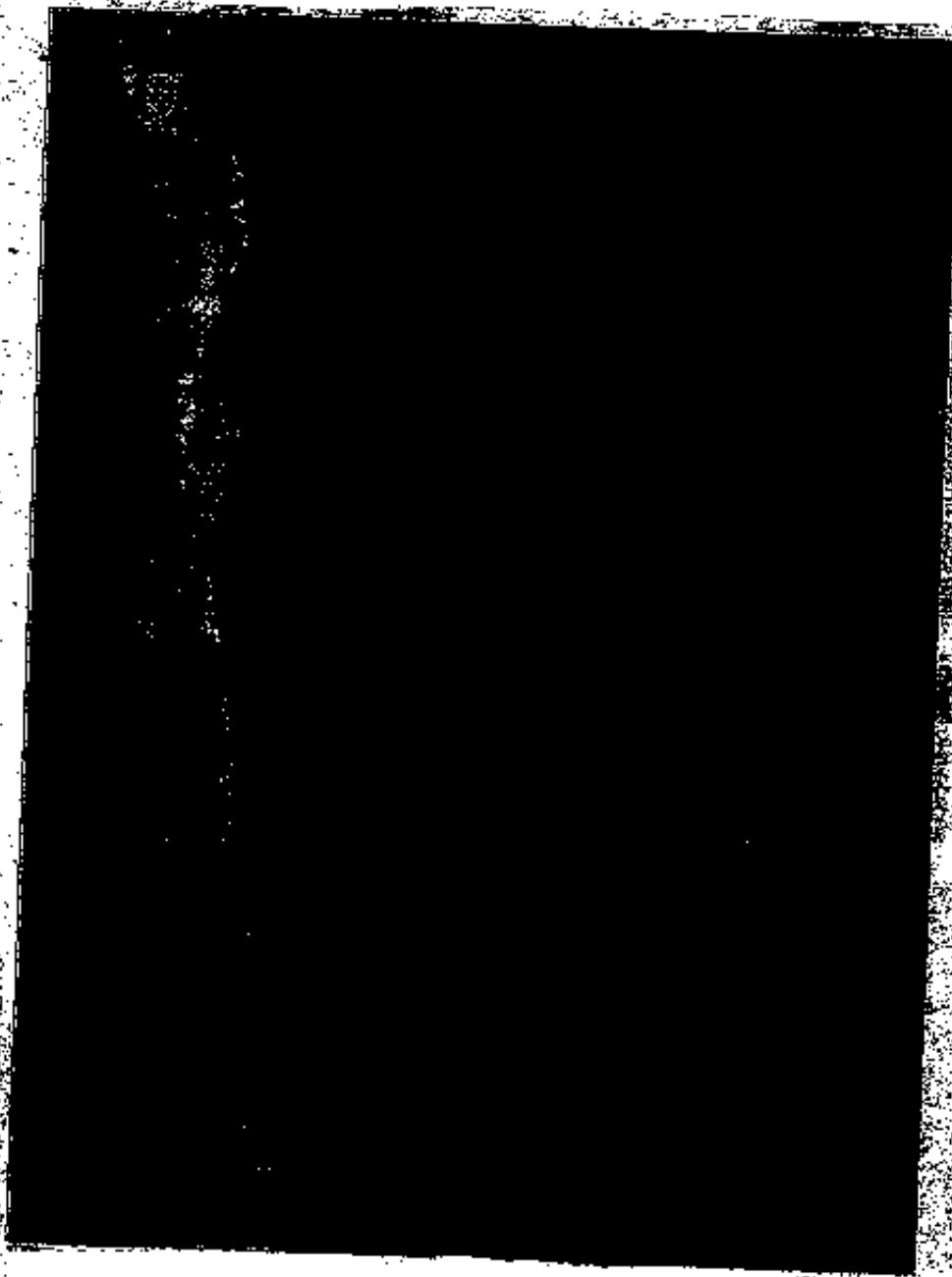
Algae

Continued from Page C6

tion, money and the will to change.

Our best incentive is to re-

in abundance. Sign up for the Maui Ocean Center's "Ka Mo'olelo Moana," or "The Ocean Story," is a monthly



Water's scarcity shows on its surface

The parched surface of an irrigation ditch in Punnapo, Kenya, shows the effects of continuing dry conditions around the world. The parched surface of the ditch in Punnapo, Kenya, shows the effects of continuing dry conditions around the world. The parched surface of the ditch in Punnapo, Kenya, shows the effects of continuing dry conditions around the world.

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Environmental Protection Agency considering county injection well permit

BY EVE CLUTE

HONOKOWAI — The U.S. Environmental Protection Agency (EPA) seeks public comments before it issues a renewal permit to the Lahaina Wastewater Reclamation Facility.

The Underground Injection Control (UIC) permit allows millions of gallons of treated wastewater to be discharged into the ground through injection wells each day.

At the sewage treatment plant in Honokowai, steel case injection wells go 300 feet into the earth. The excess wastewater from treated sewage is discharged into the wells, where it mixes with ground water.

The mixture of ground water and wastewater eventually flows into the ocean.

Monitoring wastewater is the job of the state Department of Health's Safe Drinking Water Branch (SDWB).

Morris Uehara, a geologist with SDWB on Oahu, said many monitoring wells would be needed to check where the wastewater enters the ocean, which could damage reefs.

Gordon Muranka, the SDWB water specialist on Maui, checks to see that each of the four Maui County injection well systems — Molokai, Kihei, Lahaina and Kahului — are sampled correctly according to each permit. Each permit only requires sampling about once a year.

The Lahaina plant's injection wells each day pump about 1.2 million gallons of treated R-1 wastewater into the Kaanapali Golf Resort pond, which is then used for irrigation.

In addition, 200,000 to 300,000 gallons of R-1 water is used at the treatment plant for cooling, onsite landscaping irrigation and to water the grass in detention basins, said Steve Parabicoli, county Water

PERMIT, FROM PAGE 1

Recycling Program coordinator.

He said, "R-1 wastewater is treated by oxidation, clarification, sand filtration, and disinfected with UV radiation. After treatment, the R-1 water can be used on ag lands and for putting out fires. Increased use of recycled R-1 water is an efficient way to protect our water resources, especially during times of drought. Recycled R-1 water can be used for landscaping, irrigation and construction projects, instead of drinking water. To do that requires long-term financial commitment to build infrastructure to produce R-1 water and support from the public and other government agencies."

"The recycled water that is discharged into the injection wells is a mixture of R-1 and filtered R-2 water. All has undergone nutrient removal through our denitrification system."

Not all nitrogen is removed during the treatment process. Nitrogen feeds the algae that grows on reefs. An overgrowth of algae can kill reefs, as occurred during the West Maui algae blooms of 1989 and 1991.

Dave Taylor, chief of the county Wastewater Reclamation Division, commented, "Our current priorities in the wastewater division are to replace the aging system and to provide ongoing reliability and minimize sewage spills."

Both Taylor and Parabicoli agree that millions of dollars will be needed to set up a structure where additional wastewater can be UV treated to R-1 standard and reused on land.

The two county officials spoke at the Aug. 11 meeting of the Maui Nui Marine Resources Council (MNMRC).

Members of the council commented on the large amount of nitrogen in the ocean and studies that showed an association between injection wells and an overload of nitrogen, which feeds algae that smothers and damages reefs.

The 3,000,000 gallons of wastewater discharged into the Lahaina injection wells per day is disinfected with chlorine that leaves a residual of 0.5 percent, stated Parabicoli.

Russell Sparks, education specialist for the state Department of Land & Natural Resources' Division of Aquatic Resources, commented that "drinking water is being used for agriculture, and water that should be used for ag is being pumped into injection wells."

The Hawaii Wildlife Fund headed by Hannah Bernard has established a steering committee to prepare a strategic plan to reuse treated wastewater.

The committee suggested that the treated wastewater could be used to create a green belt within the fallow sugar cane fields to facilitate rain and create a cooler micro-climate.

Nancy Rumrill of EPA stated by phone that she and her staff are willing to hold a public meeting on Maui if she receives enough letters requesting the public hearing.

A Maui public hearing would include receiving public testimony and a question and answer session. Several members of

the EPA, including the staff attorney, would attend this Maui hearing.

All letters will be answered and will help EPA understand the impacts of injected wastewater, and the urgent need to reuse injected wastewater.

A short letter to request a public hearing and comment on conditions for the injection well permit renewal can be e-mailed to RUMRILL.NANCY@EPA.GOV or mailed to Nancy Rumrill, EPA, Ground Water Office (WTR-9), 75 Hawthorne Street, San Francisco, CA 94105.

Letters with comments on renewing the Lahaina UIC permit are needed by Oct. 23.

Copies of the proposed permit, the Statement of Basis, the public notice and the County of Maui's application are available for review at Lahaina Public Library and online at <http://www.epa.gov/region09/water/groundwater/uic-permits.html>.

Huulo resident Lucienne DeNaie toured the Lahaina Wastewater Reclamation Facility earlier this year. She said the employees were dedicated and well-trained, and the monitoring systems were



DeNaie

well-maintained. However, the facility has high energy costs because the pumps are old-style and inefficient, she commented.

DeNaie is interested in the best use of all water. Between 2002 and '04, she researched Maui's water

resources, including the use of wastewater. She released a report in 2005 detailing water resources in West, Central, Upcountry and South Maui.

What became clear to DeNaie is that there is no realistic understanding of the demands of future developments on wastewater capacity. A proposed solution to future growth is to add more private sewage treatment facilities with injection wells as back-up.

DeNaie sees the benefits in having small treatment plants close to new developments to lessen the potential for sewage spills and lower energy costs due to pumping.

However, the private sewer systems are costly and raise the price of the housing development, which increases the price of affordable homes. These homeowners will pay higher sewage bills than in the county's system.

DeNaie admits that the use of injection wells is a complicated issue.

"Yet it doesn't make sense to face perennial droughts while using good, clean drinking water to keep resort and condo landscaping watered. Our county reclaimed water branch is working hard to secure the investment that will let more of our treated wastewater be put to use for irrigation. The EPA can support this effort by including conditions in renewal permit," stated DeNaie. ■

SEE PERMIT ON PAGE 22